UNIVERSITI TEKNOLOGI MARA

THE DOCTORAL RESEARCH ABSTRACTS

Volume: 6, Issue 6 November 2014

SIXTH ISSUE

INSTITUTE of GRADUATE STUDIES

Leading You To Greater Heights, Degree by Degree

IPSis Biannual Publication

Faculty of Business Management

44

Name :
Abdul Aziz Karia

Title :
Forecasting Crude Palm Oil Prices : Statistical Versus Artificial Inteligence Approaches

Supervisor :
Dr. Imbarine Bujang (MS)
Prof. Dr. Ismail Ahmad (CS)

An accurate prediction of crude palm oil (CPO) prices is important especially when investors deal with ever-increasing risks and uncertainties of the businesses in future. Observation on the movement of CPO prices suggests an inconsistent trend as the CPO prices fluctuate from time to time. With regard to this, there is need for a development of an accurate model CPO prices prediction to facilitate efficient decision making from investors, businesses and policy makers. This prediction will at least provide a time lag between the decision making and the time at which the situation reaches the market place. Therefore, the main objective of this study is to determine the most appropriate model for the prediction of CPO prices in Malaysia. Empirical evidence from the literature suggests that the statistical forecasting approach is the most widely used model to forecast CPO prices. In contrast, there is limited number of literatures on CPO prices prediction using artificial intelligence (AI) forecasting approach. Therefore, there is no clear indications on which of the

* (MS) = Main Supervisor (CS) = Co Supervisor

particular models are associated with the CPO prices in Malaysia. As a result, the following questions are raised in this study: (1) what are the best estimation models to predict CPO prices? (2) Is statistical forecasting approach applicable in predicting CPO prices? (3) Does the CPO prices model prediction degrade the level of accuracy if the time series display a strong persistence level towards the nonstationarity? In this study, the uses of two different types of forecasting approaches were proposed in the prediction of CPO prices. The models from the statistical forecasting approach which were used in this study include the autoregressive integrated moving average (ARIMA), autoregressive fractionally integrated moving average (ARFIMA) and exponential smoothing (ES). In addition, the AI models which were utilized in this study include the artificial neural network (ANN) and adaptive neuro fuzzy inference system (ANFIS). This study employed in-sample forecasting on daily free-on-board CPO prices in Malaysia and the series data stretching from a period of January first, 2004 to the end of December 2011. In an effort to demonstrate the predictability power of the applied models, a comparison was made with regard to three-day and five-day basis CPO prices. The general findings demonstrated that the ANN model is superior in predicting daily, three-day and five-day basis CPO prices compared to the ARIMA, ARFIMA, ES and ANFIS models.